

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (original): A gallium-nitride semiconductor substrate, characterized in that metal contamination on the substrate surface is 10×10^{11} atoms/cm² or less.

Claim 2 (original): A gallium-nitride semiconductor substrate, characterized in that metal contamination on the substrate surface is 5×10^{11} atoms/cm² or less.

Claim 3 (currently amended): A method of manufacturing processing a gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, ~~characterized in that in order~~ the method comprising:

polishing the substrate with an abrasive embedded into a metallic platen,
thereby leaving a process-transformed layer on the substrate;

reactive-ion etching the substrate using a halogen plasma to remove [[a]] the
~~process-transformed layer resulting from polishing, dry etching using a halogen~~
~~plasma is carried out; and~~

wet etching the reactive-ion etched substrate, by means of an etchant ~~having~~
~~no Ga face and N face selectivity~~ that is not selective for either the Ga or the N faces
of the substrate, having yet does have metal etching capability, and ~~having~~ an
oxidation-reduction potential of more than 1.2 V, ~~thereby or more is carried out;~~

~~whereby~~ to remove contaminant metal produced by ~~the dry~~ said reactive-ion etching ~~is removed.~~

Claim 4 (currently amended): A method of ~~manufacturing~~ processing a gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, ~~characterized in that~~ the method comprising at least the step of:

~~characterized in that~~ wet etching the substrate by means of an etchant that is one of $\text{HF} + \text{H}_2\text{O}_2$, $\text{HCl} + \text{H}_2\text{O}_2$, $\text{H}_2\text{SO}_4 + \text{H}_2\text{O}_2$, $\text{HNO}_3 + \text{H}_2\text{O}_2$, $\text{HF} + \text{O}_3$, $\text{HCl} + \text{O}_3$, $\text{H}_2\text{SO}_4 + \text{O}_3$, HNO_3 , or $\text{HNO}_3 + \text{O}_3$, and that has an oxidation-reduction potential of more than 1.2 V ~~or more is carried out.~~

Claim 5 (currently amended): A method of ~~manufacturing~~ processing a gallium-nitride semiconductor substrate as set forth in claim 3, characterized in that a wash for taking off organic matter by means of an organic solvent, and a wash by means of an alkaline solution in order to take off nonmetal contaminants are carried out either before or after the wet etching.

Claim 6 (currently amended): A method of ~~manufacturing~~ processing a gallium-nitride semiconductor substrate as set forth in claim 4, characterized in that a wash for taking off organic matter by means of an organic solvent, and a wash by means of an alkaline solution in order to take off nonmetal contaminants are carried out either before or after the wet etching.

Claim 7 (new): A gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, processed by the

method set forth in claim 3 so as to have a surface metal-contamination density of not more than 10×10^{11} atoms/cm².

Claim 8 (new): A gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, processed by the method set forth in claim 3 so as to have a surface metal-contamination density of not more than 5×10^{11} atoms/cm².

Claim 9 (new): A gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, processed by the method set forth in claim 4 so as to have a surface metal-contamination density of not more than 10×10^{11} atoms/cm².

Claim 10 (new): A gallium-nitride semiconductor substrate having a complex of faces in which Ga is exposed and faces in which N is exposed, processed by the method set forth in claim 4 so as to have a surface metal-contamination density of not more than 5×10^{11} atoms/cm².